(7) Any information specified in §1051.345 that you do not include in your written reports.

(e) If we ask, you must give us projected or actual production figures for an engine family. We may ask you to divide your production figures by maximum engine power, displacement, fuel type, or assembly plant (if you produce vehicles or engines at more than one plant).

(f) Keep records of the vehicle or engine identification number for each vehicle or engine you produce under each certificate of conformity. You may identify these numbers as a range. Give us these records within 30 days if we ask for them.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40499, July 13, 2005; 73 FR 59253, Oct. 8, 2008]

Subpart E—Testing In-use Engines [Reserved]

Subpart F—Test Procedures

§1051.501 What procedures must I use to test my vehicles or engines?

This section describes test procedures that you use to determine whether vehicles meet the emission standards of this part. See §1051.235 to determine when testing is required for certification. See subpart D of this part for the production-line testing requirements.

(a) *Snowmobiles.* For snowmobiles, use the equipment and procedures for spark-ignition engines in 40 CFR part 1065 to determine whether your snowmobiles meet the duty-cycle emission standards in §1051.103. Measure the emissions of all the pollutants we regulate in §1051.103. Measure CO_2, N_2O, and CH_4 as described in §1051.235. Use the duty cycle specified in §1051.505.

(b) *Motorcycles and ATVs.* For motorcycles and ATVs, use the equipment, procedures, and duty cycle in 40 CFR part 86, subpart F, to determine whether your vehicles meet the exhaust emission standards in §1051.105 or §1051.107. Measure the emissions of all the pollutants we regulate in §1051.105 or §1051.107. Measure CO_2, N_2O, and CH_4 as described in §1051.235. If we allow you to certify ATVs based on engine testing, use the equipment, procedures, and duty cycle described or referenced in the section that allows engine testing. For motorcycles with engine displacement at or below 169 cc and all ATVs, use the driving schedule in paragraph (c) of appendix I to 40 CFR part 86. For all other motorcycles, use the driving schedule in paragraph (b) of Appendix I to part 86. With respect to vehicle-speed governors, test motorcycles and ATVs in their ungoverned configuration, unless we approve in advance testing in a governed configuration. We will only approve testing in a governed configuration if you can show that the governor is permanently installed on all production vehicles and is unlikely to be removed in use. With respect to engine-speed governors, test motorcycles and ATVs in their governed configuration. Run the test engine, with all emission-control systems operating, long enough to stabilize emission levels; you may consider emission levels stable without measurement if you accumulate 12 hours of operation.

(c) *Permeation testing.* (1) Use the equipment and procedures specified in §1051.515 to measure fuel tank permeation emissions.

(2) Prior to permeation testing of fuel hose, the hose must be preconditioned by filling the hose with the fuel specified in paragraph (d)(3) of this section, sealing the openings, and soaking the hose for 4 weeks at 23 ±5 °C. To measure fuel-line permeation emissions, use the equipment and procedures specified in SAE J30 as described in 40 CFR 1060.810. The measurements must be performed at 23 ±2 °C using the fuel specified in paragraph (d)(3) of this section.

(d) *Fuels.* Use the fuels meeting the following specifications:

(1) *Exhaust.* Use the fuels and lubricants specified in 40 CFR part 1065, subpart H, for all the exhaust testing we require in this part. For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use. The following provisions apply for using specific fuel types:

(i) For gasoline-fueled engines, use the grade of gasoline specified for general testing.

(ii) For diesel-fueled engines, use either low-sulfur diesel fuel or ultra low-

sulfur diesel fuel meeting the specifications in 40 CFR 1065.703. If you use sulfur-sensitive technology as defined in 40 CFR 1039.801 and you measure emissions using ultra low-sulfur diesel fuel, you must add a permanent label near the fuel inlet with the following statement: ''ULTRA LOW SULFUR FUEL ONLY''.

(2) *Fuel Tank Permeation.* (i) For the preconditioning soak described in §1051.515(a)(1) and fuel slosh durability test described in §1051.515(d)(3), use the fuel specified in Table 1 of 40 CFR 1065.710 blended with 10 percent ethanol by volume. As an alternative, you may use Fuel CE10, which is Fuel C as specified in ASTM D 471–98 (see 40 CFR 1060.810) blended with 10 percent ethanol by volume.

(ii) For the permeation measurement test in §1051.515(b), use the fuel specified in Table 1 of 40 CFR 1065.710. As an alternative, you may use the fuel specified in paragraph (d)(2)(i) of this section.

(3) *Fuel Hose Permeation.* Use the fuel specified in Table 1 of 40 CFR 1065.710 blended with 10 percent ethanol by volume for permeation testing of fuel lines. As an alternative, you may use Fuel CE10, which is Fuel C as specified in ASTM D 471–98 (see 40 CFR 1060.810) blended with 10 percent ethanol by volume.

(e) *Engine stabilization.* Instead of the provisions of 40 CFR 1065.405, you may consider emission levels stable without measurement after 12 hours of engine operation.

(f) [Reserved]

(g) *Special procedures for engine testing.* (1) You may use special or alternate procedures, as described in §1065.10 of this chapter.

(2) We may reject data you generate using alternate procedures if later testing with the procedures in part 1065 of this chapter shows contradictory emission data.

(3) You may test engines using a test speed based on the point of maximum power if that represents in-use operation better than testing based on maximum test speed.

(h) *Special procedures for vehicle testing.* (1) You may use special or alternate procedures, as described in paragraph (f)(3) of this section.

(2) We may reject data you generate using alternate procedures if later testing with the otherwise specified procedures shows contradictory emission data.

(3)(i) The test procedures specified for vehicle testing are intended to produce emission measurements equivalent to those that would result from measuring emissions during in-use operation using the same vehicle configuration. If good engineering judgment indicates that use of the procedures in this part for a vehicle would result in measurements that are not representative of in-use operation of that vehicle, you must notify us. If we determine that using these procedures would result in measurements that are significantly unrepresentative and that changes to the procedures will result in more representative measurements that do not decrease the stringency of emission standards or other requirements, we will specify changes to the procedures. In your notification to us, you should recommend specific changes you think are necessary.

(ii) You may ask to use emission data collected using other test procedures, such as those of the California Air Resources Board or the International Organization for Standardization. We will allow this only if you show us that these data are equivalent to data collected using our test procedures.

(iii) You may ask to use alternate procedures that produce measurements equivalent to those obtained using the specified procedures. In this case, send us a written request showing that your alternate procedures are equivalent to the test procedures of this part. If you prove to us that the procedures are equivalent, we will allow you to use them. You may not use alternate procedures until we approve them.

(iv) You may ask to use special test procedures if your vehicle cannot be tested using the specified test procedures (for example, it is incapable of operating on the specified transient cycle). In this case, send us a written request showing that you cannot satisfactorily test your engines using the test procedures of this part. We will allow you to use special test procedures if we determine that they would produce emission measurements that

are representative of those that would result from measuring emissions during in-use operation. You may not use special procedures until we approve them.

[67 FR 68347, Nov. 8, 2002, as amended at 69 FR 2442, Jan. 15, 2004; 70 FR 40499, July 13, 2005; 73 FR 59253, Oct. 8, 2008; 74 FR 56511, Oct. 30, 2009]

§ 1051.505 What special provisions apply for testing snowmobiles?

Use the following special provisions for testing snowmobiles:

(a) You may perform steady-state testing with either discrete-mode or ramped-modal cycles. You must use the type of testing you select in your application for certification for all testing you perform for that engine family. If we test your engines to confirm that they meet emission standards, we will do testing the same way. If you submit certification test data collected with both discrete-mode and ramped-modal testing (either in your original application or in an amendment to your application), either method may be used for subsequent testing. We may also perform other testing as allowed by the Clean Air Act. Measure steady-state emissions as follows:

(1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. In each mode, operate the engine for at least 5 minutes, then sample emissions for at least 1 minute. Calculate cycle statistics and compare with the established criteria as specified in 40 CFR 1065.514 to confirm that the test is valid.

(2) For ramped-modal testing, start sampling at the beginning of the first mode and continue sampling until the end of the last mode. Calculate emissions and cycle statistics the same as for transient testing as specified in 40 CFR part 1065, subpart G.

(3) Measure emissions by testing the engine on a dynamometer with one or more of the following sets of duty cycles to determine whether it meets the steady-state emission standards in § 1051.103:

(i) The following duty cycle applies for discrete-mode testing:

TABLE 1 OF § 1051.505—5-MODE DUTY CYCLE FOR SNOWMOBILES

Mode No.	Speed (percent) [1]	Torque (percent) [2]	Minimum time in mode (minutes)	Weighting factors
1	100	100	3.0	0.12
2	85	51	3.0	0.27
3	75	33	3.0	0.25
4	65	19	3.0	0.31
5	Idle	0	3.0	0.05

[1] Percent speed is percent of maximum test speed.
[2] Percent torque is percent of maximum torque at maximum test speed.

(ii) The following duty cycle applies for ramped-modal testing:

TABLE 2 OF § 1051.505—RAMPED-MODAL CYCLE FOR TESTING SNOWMOBILES

RMC mode	Time in mode	Speed (percent) [1]	Torque (percent) [2, 3]
1a Steady-state	27	Warm Idle	0
1b Transition	20	Linear Transition	Linear Transition
2a Steady-state	121	100	100
2b Transition	20	Linear Transition	Linear Transition
3a Steady-state	347	65	19
3b Transition	20	Linear Transition	Linear Transition
4a Steady-state	305	85	51
4b Transition	20	Linear Transition	Linear Transition
5a Steady-state	272	75	33
5b Transition	20	Linear Transition	Linear Transition